

Vermont Mental Health Performance Indicator Project

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MEMORANDUM

TO: Vermont Mental Health Performance Indicator Project
Advisory Group and Interested Parties

FROM: John Pandiani
Monica Simon

DATE: September 7, 2001

RE: Educational Test Performance and Trouble with the Law

The relationship between Vermont's standardized educational test scores and a number of measures of mental health service system performance will be one of the new areas of investigation under the grant proposal that was recently submitted by the Vermont Mental Health Performance Indicator Project. Over the next three years we will be exploring the utility of data from the Vermont statewide New Standards Reference Exams for evaluating the performance of mental health programs and for understanding the larger system of care for children and adolescents with emotional and behavioral disorders. We hope to use test results to measure both school participation and school performance. These measures will be considered as indicators of access to mental health services, and as indicators of mental health treatment outcomes. The relationship of school performance to other system of care indicators will also be investigated.

The attached tables and graphs present the results of some of our first analyses of the test score data files we recently received from the Department of Education. This analysis focuses on the relationship of participation/performance on the "skills" area of the Mathematics Assessment and the likelihood of getting into trouble with the law for tenth graders who were 16 years of age during 1998, 1999, and 2000. As such, this analysis focuses on the relationship between school test participation/performance and an important service system outcome without specific reference to participation in mental health services. Future analyses will explore other facets of the relationships between participation in mental health services, school participation/performance, and longer-term outcomes for children and adolescents.

Criminal justice involvement, for this analysis, involves being charged with a crime in a Vermont District Court during each of two time periods, the year of the test and the year after the test. Criminal justice involvement will be measured for young people with each of three levels of school participation/performance. These groups include (1) young people who were tested and scored at or above standard, (2) young people who were tested and scored below standard, and (3) young people who were not tested on grade level. Young people not tested on grade level include students who were exempted from testing, students who did not complete the test, students who were administered non-standard tests, students who were tested at a different grade level than their age would predict, and young people who were not enrolled in a public

school. Of the students who were not tested on grade level, approximately 25% were tested at a different grade level; 75% were excluded for the other reasons listed above.

In order to protect the confidentiality of educational records, all of the analyses conducted in conjunction with this project will use anonymous extracts from educational and other existing administrative databases.¹ For this reason, Probabilistic Population Estimation² has been used to determine the overlap between the educational and criminal justice data sets in this analysis. Probabilistic Population Estimation is a statistical procedure that provides valid and reliable measures of the size and overlap of data sets that do not include unique person identifiers. These estimates are based on a comparison of the distribution of dates of birth in the data sets to the known distribution of dates of birth in the general population.

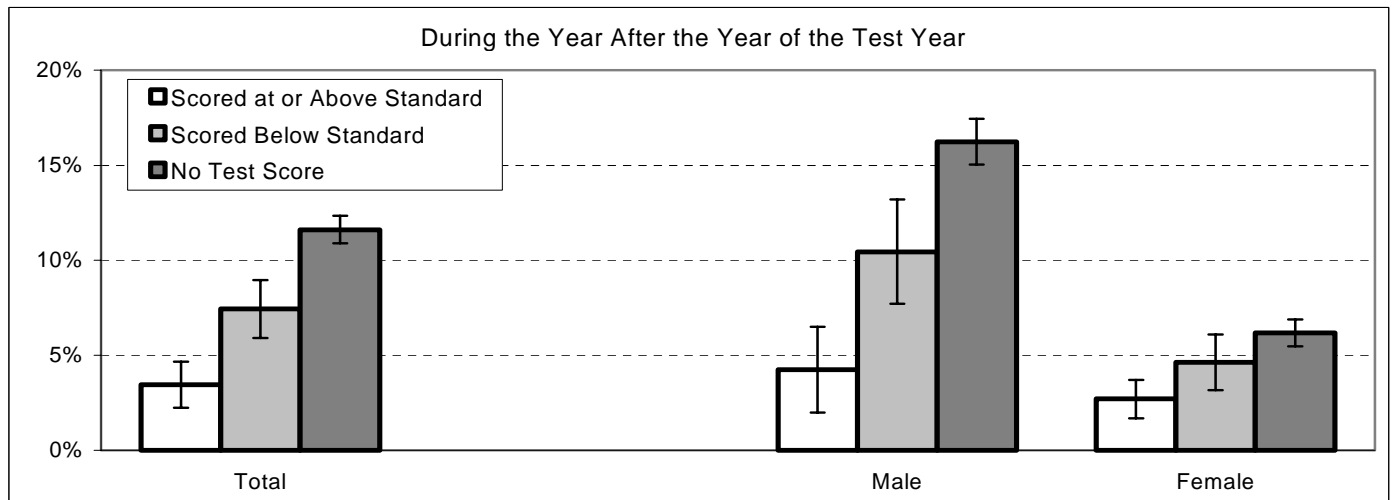
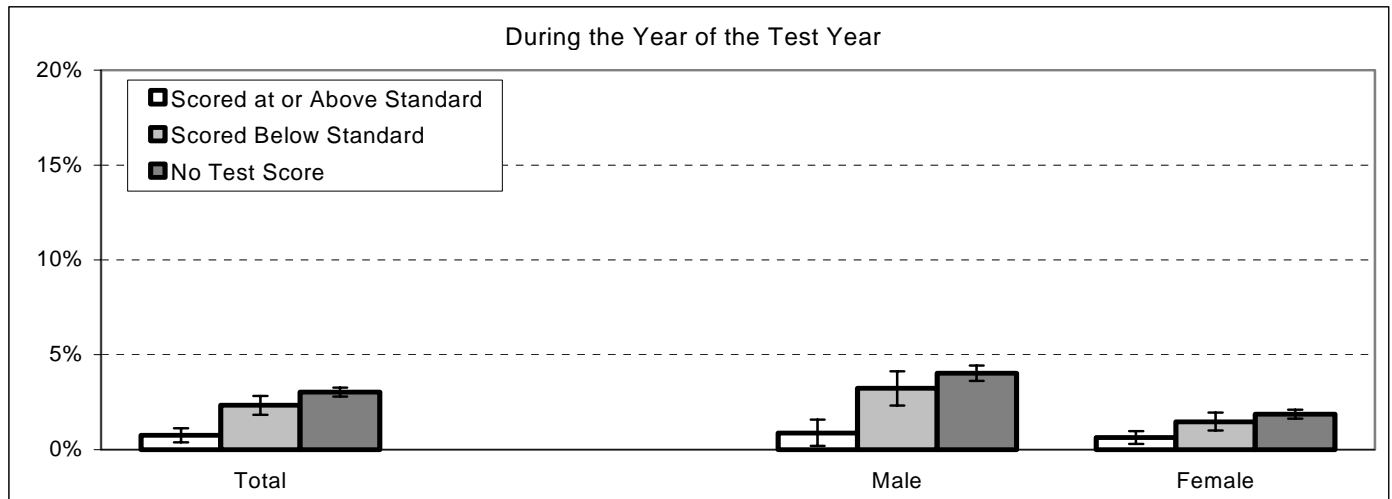
As you will see, there were statistically significant differences among the three test score groups in the rate at which they were charged with a crime. Young people who scored at or above the standard were the least likely to be charged with a crime and young people who did not participate were the most likely to be charged with a crime. The rates of criminal justice involvement and the differences among the three groups were greatest during the year after testing. During the year after the test, almost 12% of the young people who did not participate were charged with a crime, compared to less than 4% of the young people who scored at or above the standard on the test. Boys were more likely than girls to be charged with a crime, but the difference tends to be less among young people who scored at or above grade level.

We will be very interested in your interpretation of these findings, your suggestions for further analysis of using educational test scores in conjunction with data regarding participation in human services programs and treatment outcomes for children and adolescents in Vermont. As always, you can reach us at jpandiani@ddmhs.state.vt.us or call 802-241-2638.

¹ Pandiani, JA, Banks, SM, and Schacht, LM (1998a) Personal Privacy vs. Public Accountability: A Technological Solution to an Ethical Dilemma. *The Journal of Behavioral Health Services and Research*, 25 (4).

² Banks SM, and Pandiani JA (2001) Probabilistic Population Estimation of the Size and Overlap of Data Sets Based on Date of Birth. *Statistics in Medicine*, Vol. 20.

Young People Charged with a Crime in Vermont District Court For Three Education Test Participation/Performance Levels 10th Graders Tested on Grade Level* During 1998 - 2000



| | Charged with a Crime | | | | | |
|--------|-----------------------------|-----------------------|-----------------|-------------------------------------|-----------------------|-----------------|
| | During the Test Year | | | During the Year After the Test Year | | |
| | Scored at or Above Standard | Scored Below Standard | No Test Score** | Scored at or Above Standard | Scored Below Standard | No Test Score** |
| Total | 0.8% ± 0.4% | 2.3% ± 0.5% | 3.0% ± 0.2% | 3.4% ± 1.2% | 7.4% ± 1.5% | 11.6% ± 0.7% |
| Male | 0.9% ± 0.7% | 3.2% ± 0.9% | 4.0% ± 0.4% | 4.3% ± 2.3% | 10.4% ± 2.7% | 16.2% ± 1.2% |
| Female | 0.6% ± 0.3% | 1.5% ± 0.5% | 1.9% ± 0.2% | 2.7% ± 1.0% | 4.6% ± 1.5% | 6.2% ± 0.7% |

*On grade level for 10th grade includes young people whose 16th birthday fell between July of the summer before the academic year and September of the following year.

**No test score was available for individuals who were not enrolled in a Vermont public school, were exempted from testing, did not complete the test, had alternate assessments, or were not tested on grade level.

All test scores are for the "skills" area of the Mathematics Assessment completed in March/April of each academic year. Charged with a crime is measured on the basis of the fiscal year. Most charges for the "year of the test" occurred before the date of the test.

Analysis is based on data provided by The Center for Justice Research and The Vermont Department of Education. Because these data sets do not share unique person identifiers, Probabilistic Population Estimation was used to provide unduplicated counts of individuals shared across data sets (with 95% confidence intervals).